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TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector. Note: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 30mV signal at mic input.	Ch. 19	VR 6	AMC Adjust for 95% modulation maximum. (See figure 2)
Input of RF wattmeter to antenna input.	Ch. 19	VR 5	TX PWR METER Adjust so that TX PWR meter agrees with RF wattmeter.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting. Preset controls as follows unless otherwise noted: Squelch MINIMUM, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP 7 (D 4 anode). 455kHz @ 30% modulation.	Ch. 19	L 8, 7, 6	Adjust for maximum output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	L 4, 2, 1	Adjust for maximum output. Readjust L 6, 7 and 8.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Preset controls as follows, unless otherwise noted: Squelch MINIMUM, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 200uV.	Ch. 19 Volume maximum	VR 7	RF Gain (IF Gain) Adjust for 2.00 volts RMS (500mw) audio output.

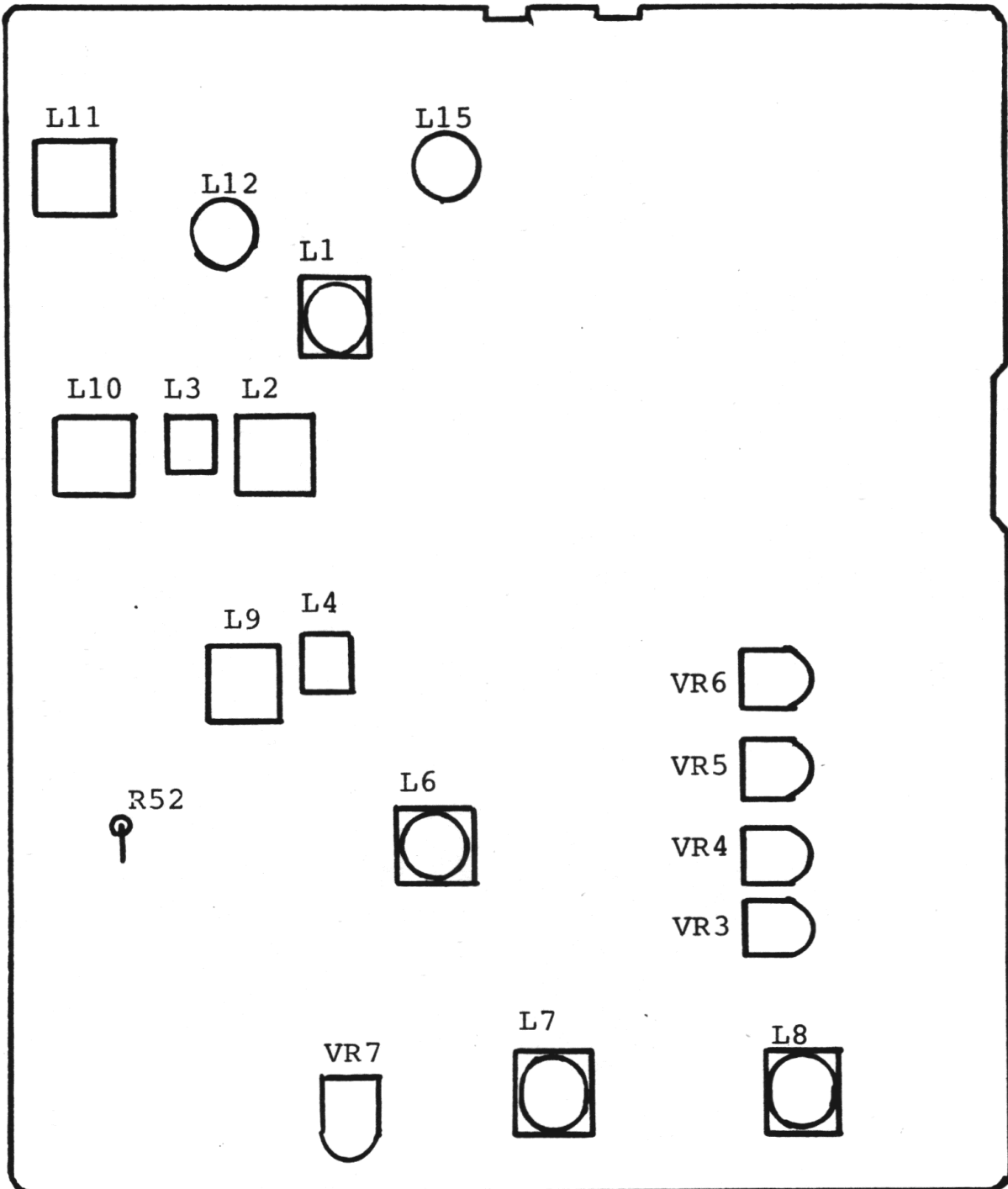
ALIGNMENT PROCEDURES CONT'D
19 LTD

RECEIVER ADJUSTMENTS (CONTINUED)

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	VR 3	T. SQ. (Squelch Range) Adjust so that squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	VR 4	Sig Meter Adjust for 9 on Sig scale of meter.

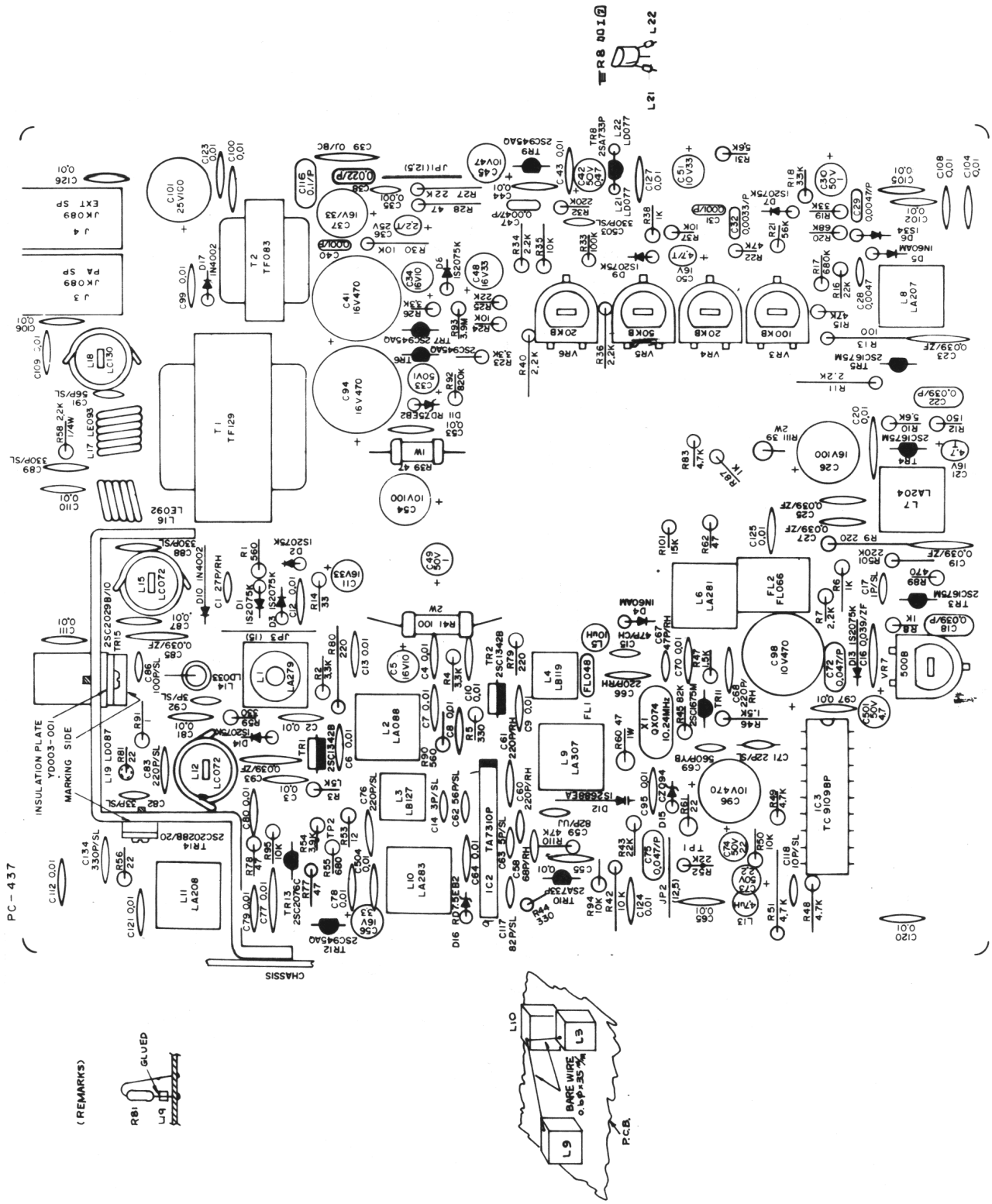
ALIGNMENT LAYOUT

Cobra 19LTD



ALIGNMENT LAYOUT

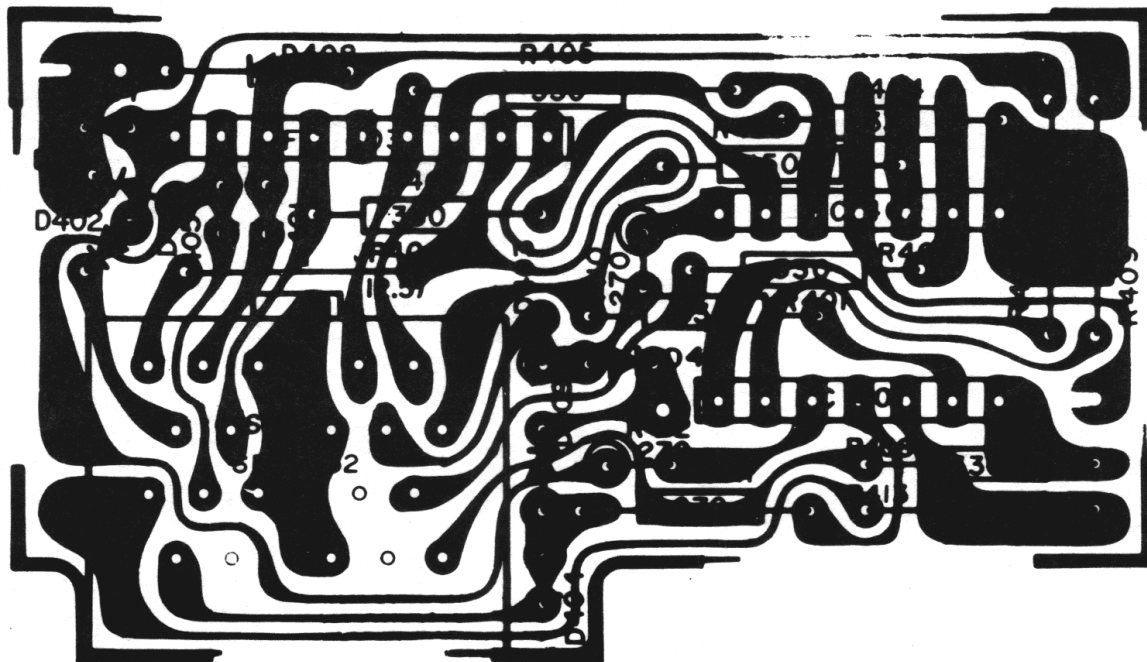
19 LTD PARTS LAYOUT MAIN PCB (top view)



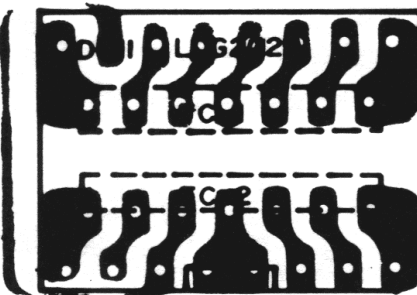
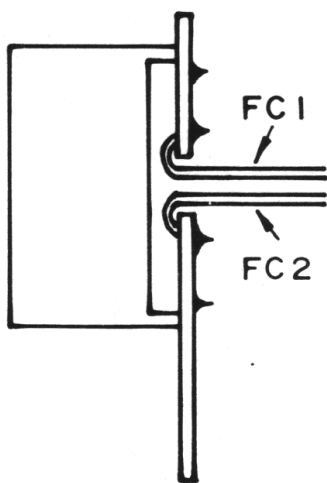
PARTS LAYOUT SUB. ASS'Y PCB (top view) W/FOIL PATTERNS
19 LTD

PC-996AA CH.SW

D401~D409
IS2075K x 9

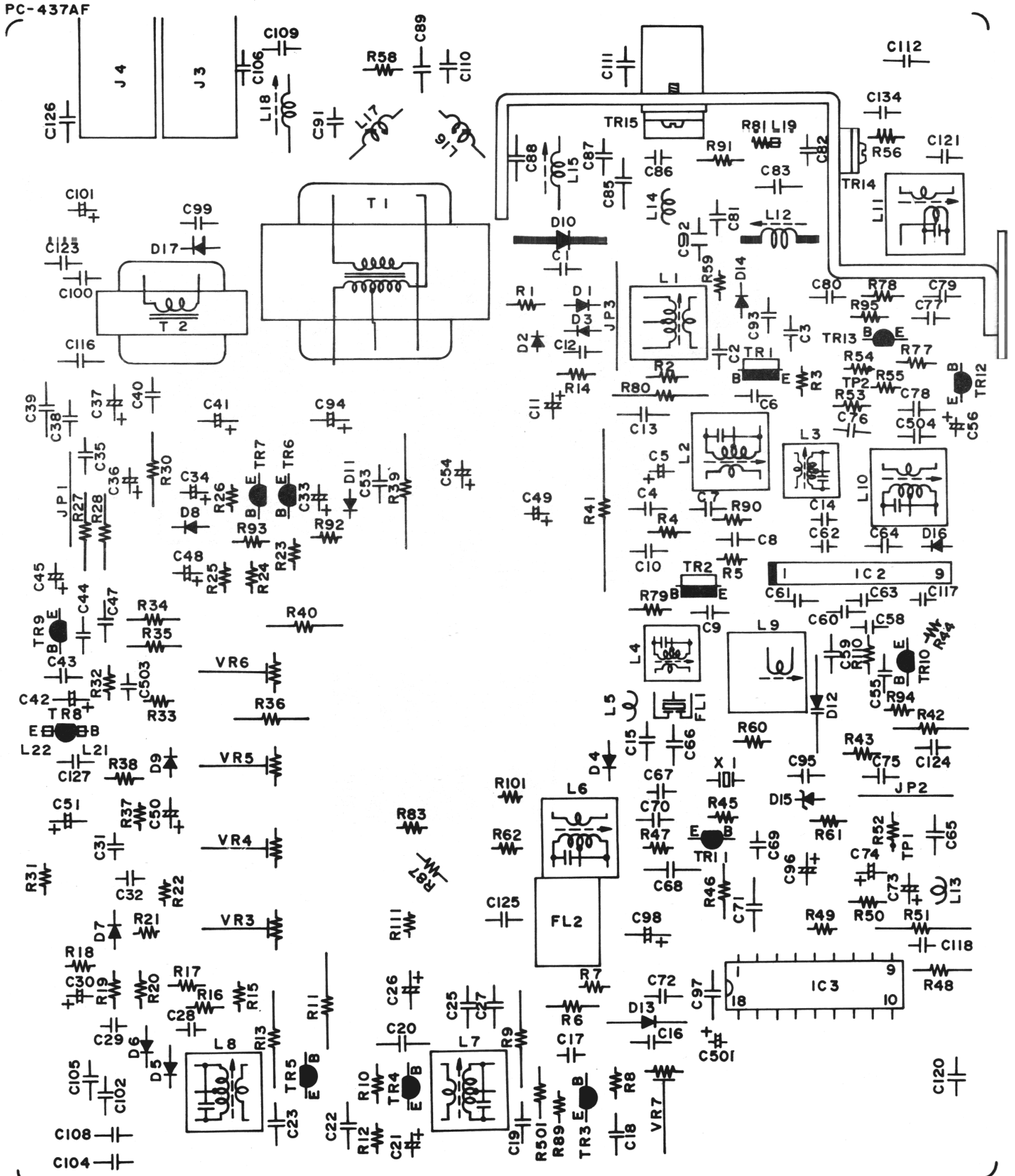


PC-554AA LED

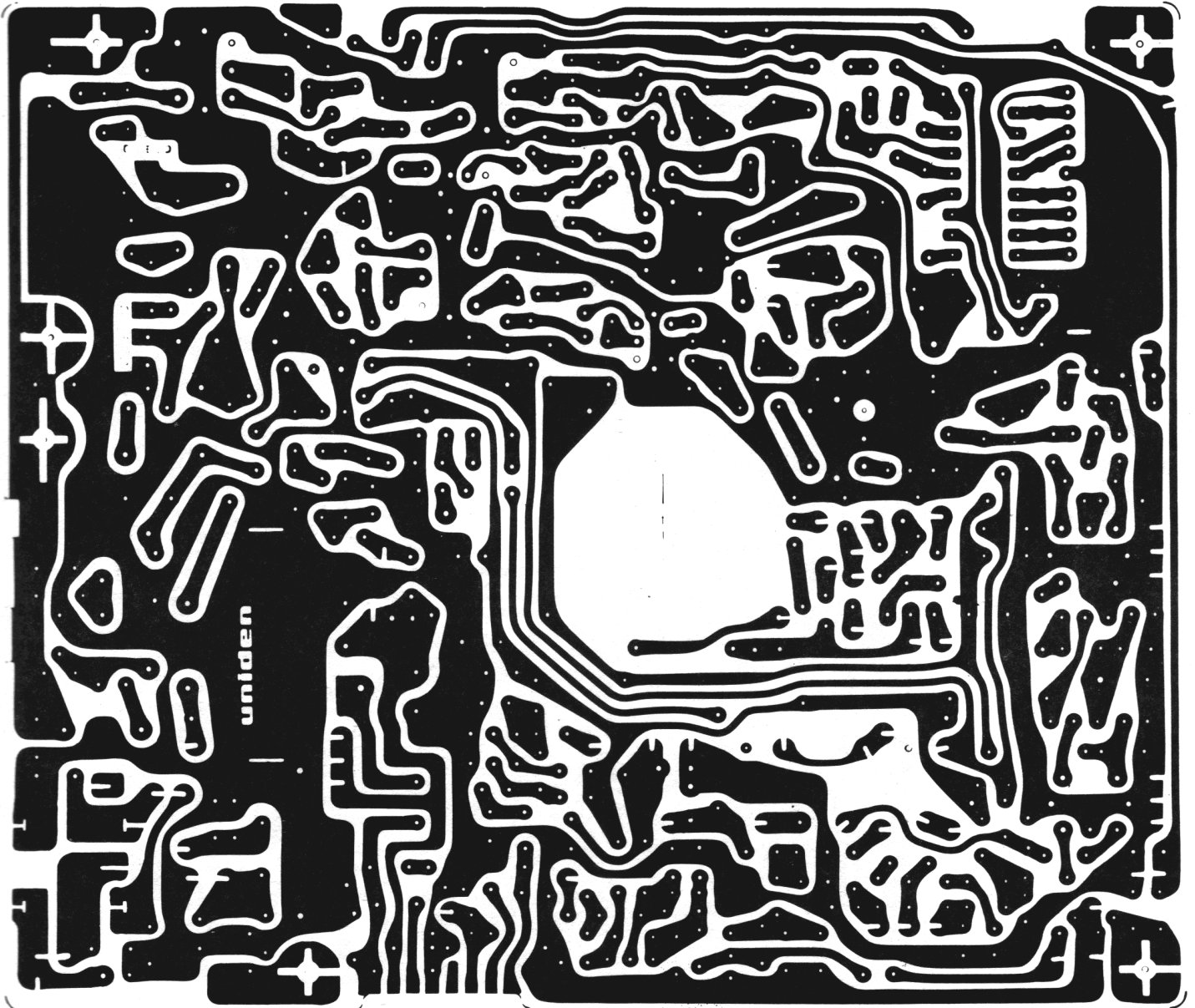


PARTS LAYOUT MAIN PCB (bottom view)
19 LTD

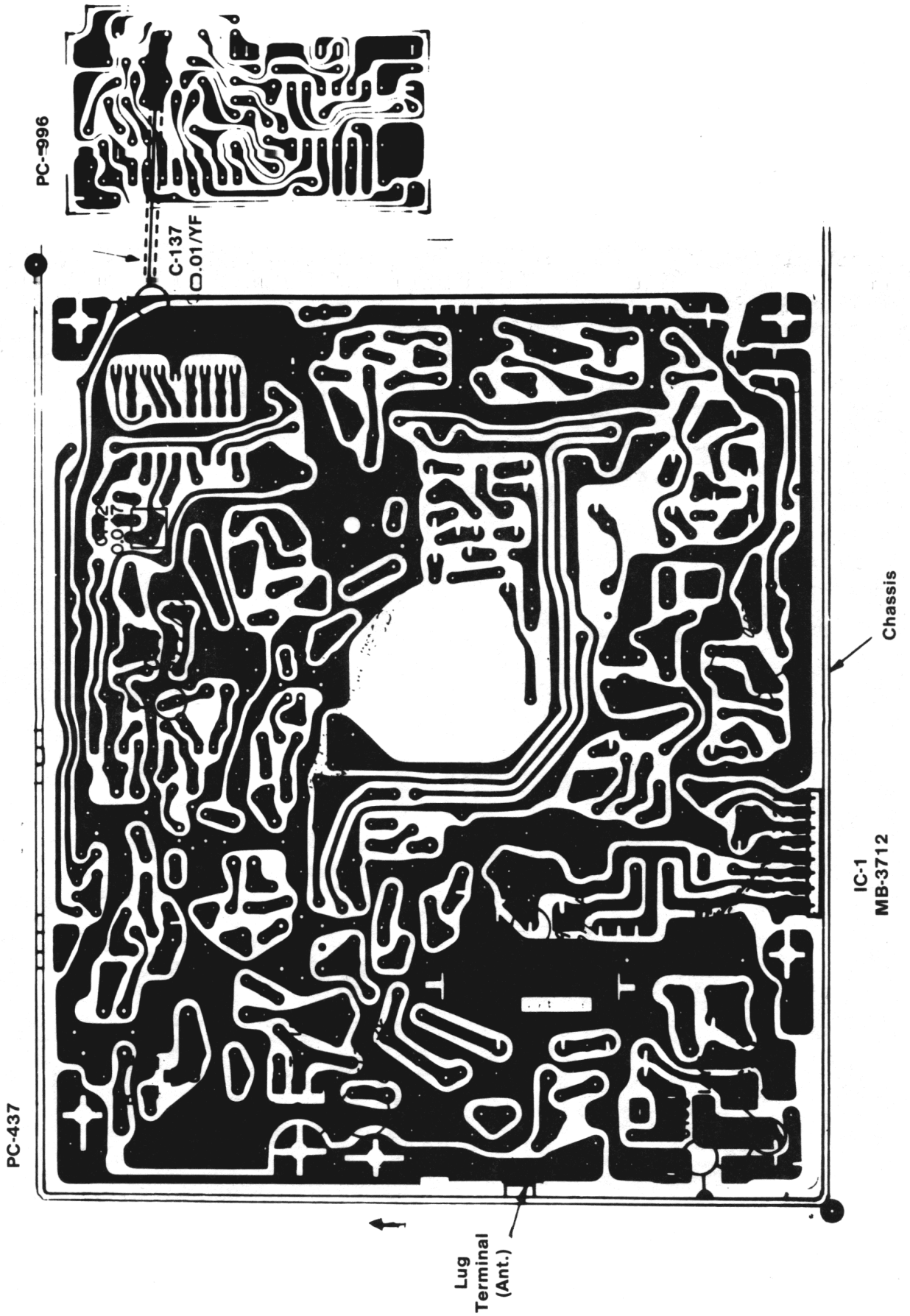
PC-437AF



BOTTOM COPPER FOIL PATTERN – MAIN PCB
19 LTD



19 LTD
ADDED PARTS VIEW (bottom)



VOLTAGE CHART FOR I. C. 'S & VOLTAGE CHART FOR TRANSISTORS
19 LTD

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC 1	6.8	13.6	12.9	0	0.6	0	0.6	0.6	-	-	-	-	-	-	-	-	-	-	-
IC 2	2.6	2.1	2.0	2.6	0	7.6	2.0	2.0	7.6	6.4	-	-	-	-	-	-	-	-	-
IC 3	7.6	3.4	0	7.6	3.8	3.8	1.7	1.7	6.5	3.4	0	0	0	7.5	7.5	0	7.5	7.5	0

		Collector	Base	Emitter	Remarks
TR 1	TX RX PA	0 7.5 0	0 1.3 0	0 0.9 0	
TR 2	TX RX PA	9.2 11.0 9.1	0 1.1 0	0 0.8 0	
TR 3	TX RX PA	9.2 11.0 9.1	0 1.4 0	0 0.8 0	
TR 4	TX RX PA	0 1.6 0	0 0.7 0	0 0 0	
TR 5	TX RX PA	9.2 11.0 9.1	0 1.6 0	0 0.9 0	
TR 6	TX RX PA	0 0.7 0	0 0 0	0 0 0	SQ MIN SQ MAX
TR 7	TX RX PA	0 2.5 0	0 0.7 0	0 0 0	SQ MIN SQ MAX
TR 8	TX RX PA	0.1 0.2 0	0 0 0	0 0 0	
TR 9	TX RX PA	3.6 9.9 3.5	1.0 3.1 1.0	0.4 7.6 0.4	
TR10	TX RX PA	7.6 0 0	7.0 7.6 9.1	7.6 7.6 7.6	
TR11	TX RX PA	5.0 5.0 5.0	3.3 3.2 3.2	2.6 2.6 2.6	
TR12	TX RX PA	0.2 9.6 9.6	0.8 7.6 10.6	0 7.6 7.6	
TR13	TX RX PA	12.0 13.6 13.6	2.6 3.0 3.0	2.1 9.6 9.6	
TR14	TX RX PA	13.0 13.3 13.2	0 0 0	0 0 0	
TR15	TX RX PA	12.0 13.3 13.3	-0.1 0 0	0 0 0	
TR16	TX RX PA	13.6 13.6 13.6	6.9 6.9 6.9	6.3 6.3 6.3	

LOGIC TABLE FOR IC'S

1 = 7

0 = 0

19LTD TRUTH TABLE

CHANNEL	PIN #								
	2	3	4	5	6	7	8	9	
1	1	1	1	1	1	1	1	1	1
2	1	1	1	0	0	0	0	0	1
3	1	1	1	0	1	0	0	0	1
4	1	1	1	1	1	0	1	0	0
5	1	1	1	0	1	0	0	0	0
6	1	1	1	0	0	0	1	0	0
7	1	1	1	1	1	1	0	1	1
8	1	1	1	0	0	0	0	0	0
9	1	1	1	1	1	0	0	0	0
10	1	1	0	0	0	1	0	0	0
11	1	1	0	1	1	1	1	1	1
12	1	1	0	0	0	0	0	0	1
13	1	1	0	0	1	0	0	0	1
14	1	1	0	1	1	0	1	0	0
15	1	1	0	0	1	0	0	0	0
16	1	1	0	0	0	0	1	0	0
17	1	1	0	1	1	1	0	1	1
18	1	1	0	0	0	0	0	0	0
19	1	1	0	1	1	0	0	0	0
20	1	0	1	0	0	1	0	0	0
21	1	0	1	1	1	1	1	1	1
22	1	0	1	0	0	0	0	0	1
23	1	0	1	0	1	0	0	0	1
24	1	0	1	1	1	0	1	0	0
25	1	0	1	0	1	0	0	0	0
26	1	0	1	0	0	0	1	0	0
27	1	0	1	1	1	1	0	1	1
28	1	0	1	0	0	0	0	0	0
29	1	0	0	1	1	0	0	0	0
30	1	0	0	0	0	1	0	0	0
31	1	0	0	1	1	1	1	1	1
32	1	0	0	0	0	0	0	0	1
33	1	0	0	0	1	0	0	0	1
34	1	0	0	1	1	0	1	0	0

LOGIC TABLE for IC'S CONT'D

1 = 7

0 = 0

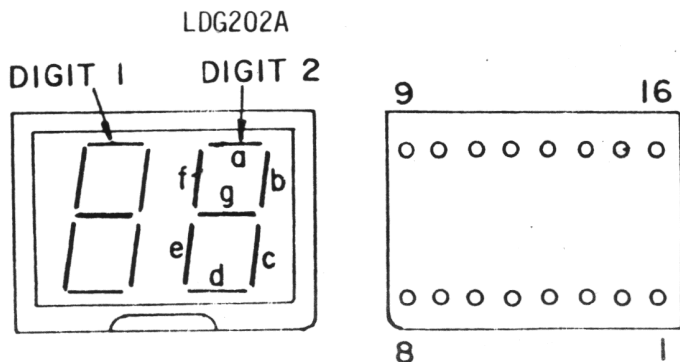
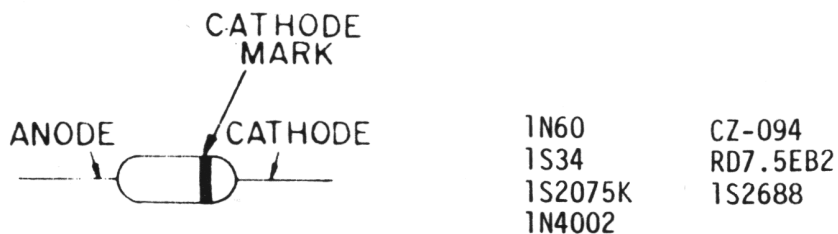
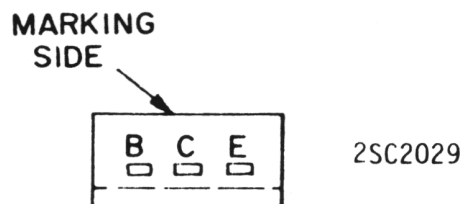
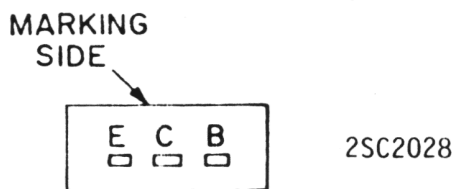
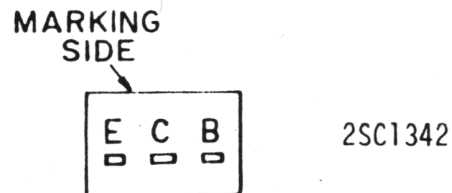
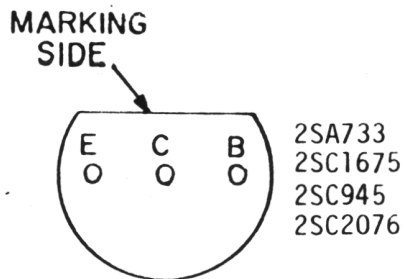
19LTD TRUTH TABLE

PAGE 2

CHANNEL	PIN #							
	2	3	4	5	6	7	8	9
35	1	0	0	0	1	0	0	0
36	1	0	0	0	0	0	1	0
37	1	0	0	1	1	1	0	1
38	1	0	0	0	0	0	0	0
39	1	0	0	1	1	0	0	0
40	1	1	0	0	0	1	0	0

SEMICONDUCTOR PIN CONFIGURATION

MODEL: Cobra-19LTD

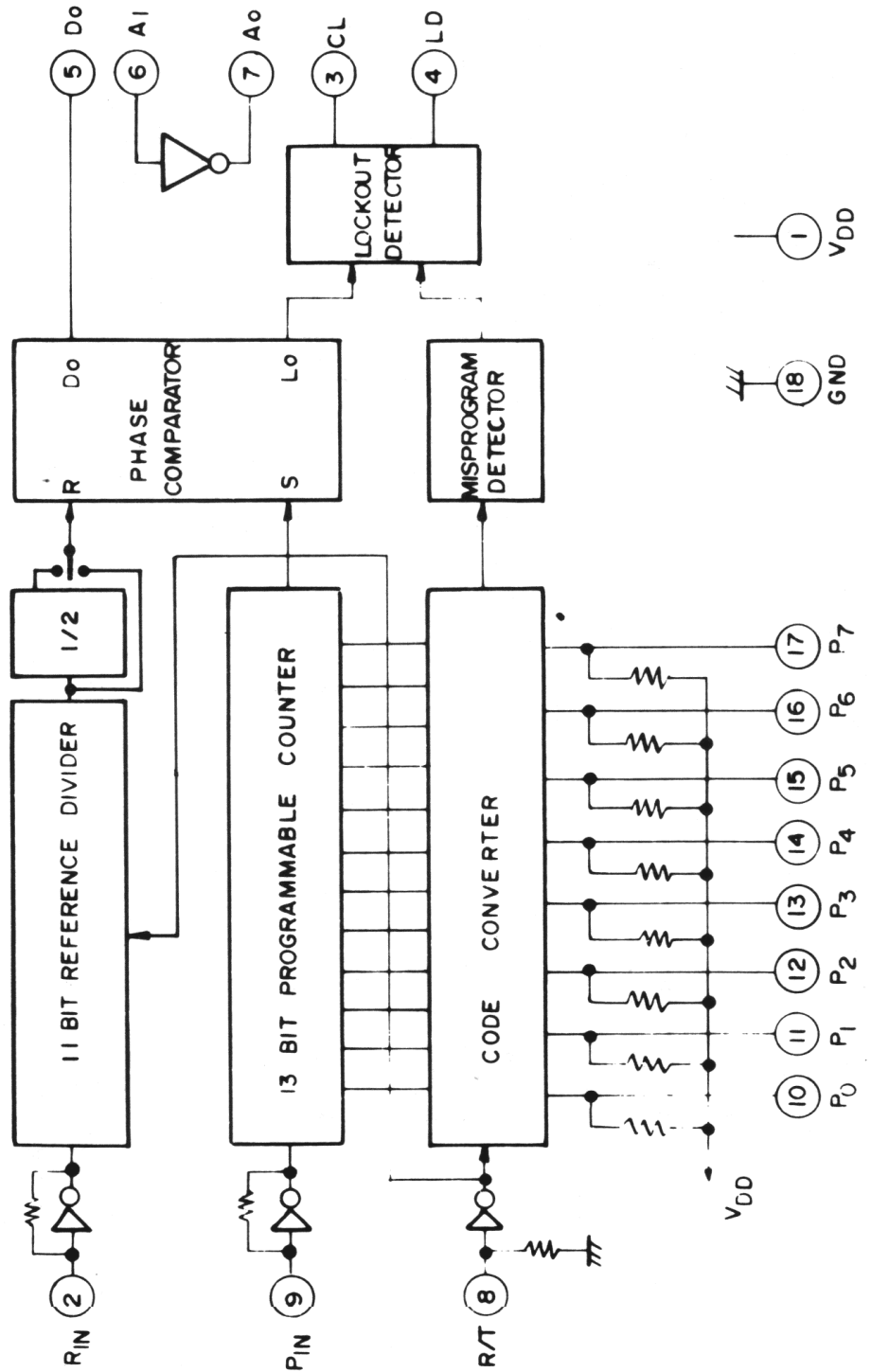


(ANODE COMMON)

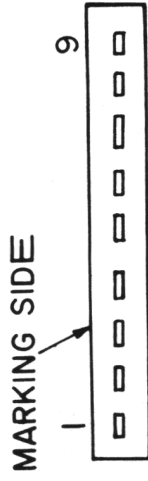
pin NO.		pin NO.	
1	c-1	9	g-2
2	e-1	10	a-2
3	d-1	11	f-2
4	common-1	12	b-2
5	common-2	13	b-1
6	d-2	14	f-1
7	e-2	15	a-1
8	c-2	16	g-1

INTERNAL DIAGRAM — IC'S
19 LTD

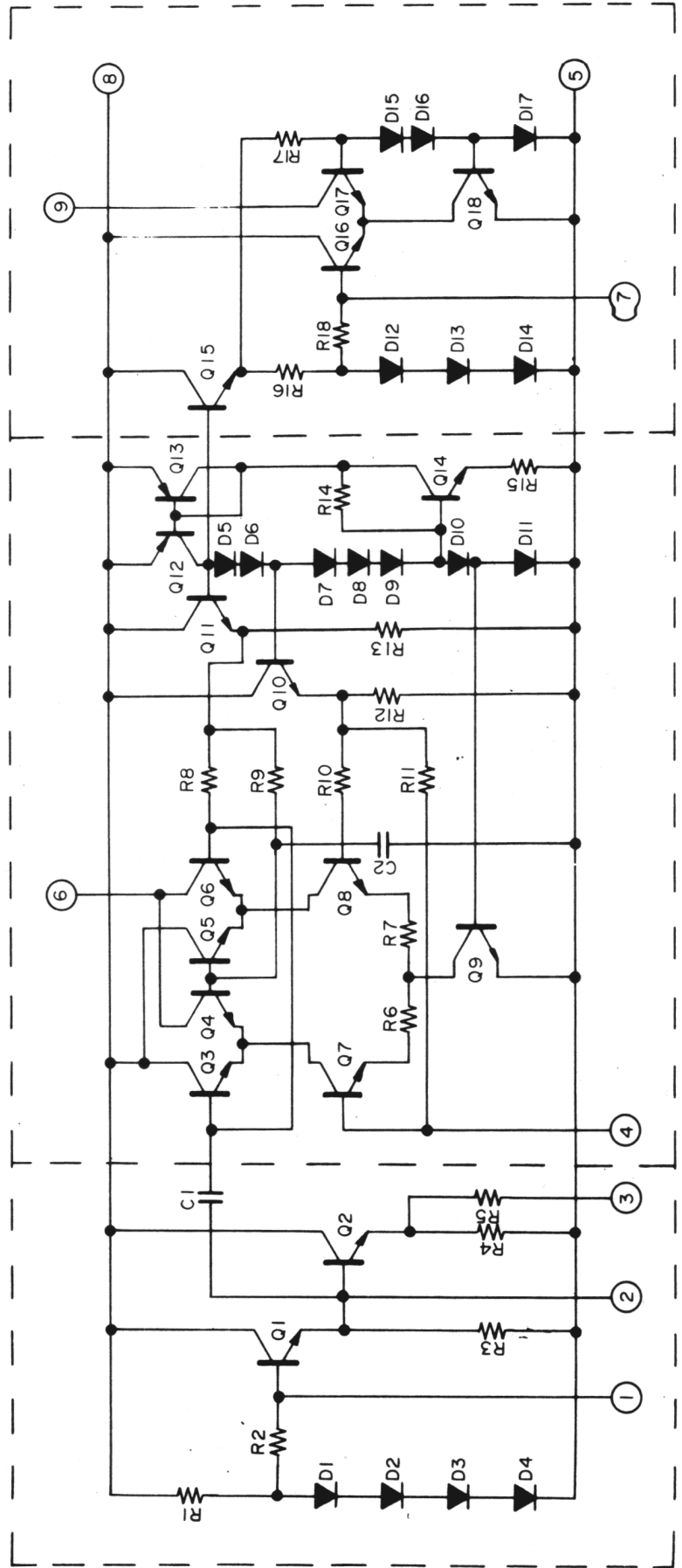
TC9109P



INTERNAL DIAGRAM — IC'S CONT'D

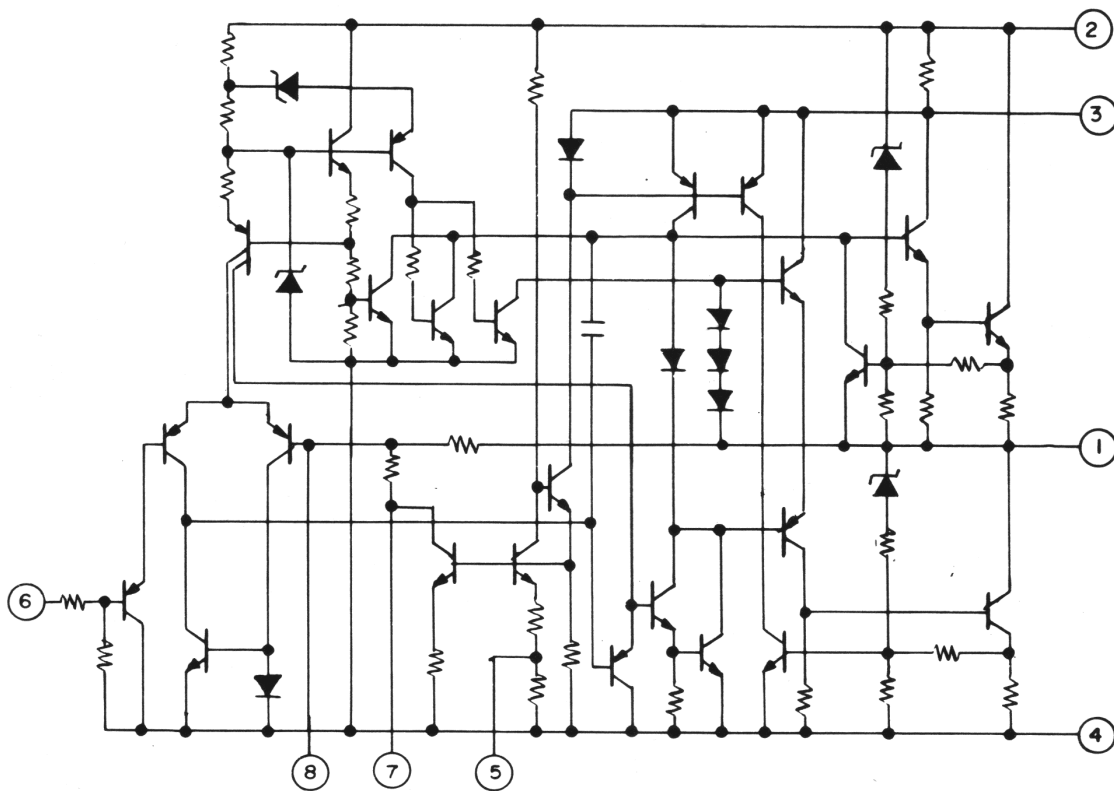


TA7310P



INTERNAL DIAGRAM – IC's CONT'D
19 LTD

MB3712



PARTS LIST

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
IC 1	Integrated Circuit, MB 3712	307-151-9-001
IC 2	Integraged Circuit, TA731OP	307-133-9-004
IC 3	Integrated Circuit, TC9109BP	307-151-9-002
TR 8, 10	Transistor, 2SA733-P	177-020-9-001
TR 3, 4, 5, 11	Transistor, 2SC1675-M	176-060-9-002
TR 6, 7, 9, 12	Transistor, 2SC945-AQ	176-062-9-001
TR 1, 2	Transistor, 2SC1342-B	176-074-9-001
TR 14, 16	Transistor, 2SC2028-B/20	172-038-9-001
TR 15	Transistor, 2SC2029-B/10	172-038-9-002
TR 13	Transistor, 2SC2076-C	176-060-9-004
D 12	Diode, Vari-Cap, 1S2688-EA	154-004-9-001
D 411	Diode, LED, LDG202A	158-042-9-001
L 2	Coil, LA-088	066-019-9-002
L 7	Coil, LA-204	046-024-9-003
L 8	Coil, LA-207	046-025-9-001
L 11	Coil, LA-208	060-029-9-004
L 1	Coil, LA-279	046-027-9-001
L 6	Coil, LA-281	046-027-9-003
L 10	Coil, LA-283	046-027-9-005
L 9	Coil, LA-307	046-030-9-001
L 4	Coil, LB-119	046-027-9-007
L 3	Coil, LB-127	046-030-9-002
L 12, 15	Coil, LC-072	044-040-9-001
L 18	Coil, LC-130	041-106-9-001
L 14	Coil, LD-033	041-083-9-003
L 21, 22	Coil, LD-077	763-084-9-001
L 19	Coil, LD-087	044-048-9-003
L 16	Coil, LE-092	041-115-9-001

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
L 17	Coil, LE-093	041-115-9-002
L 13	Inductor, Molded, LZ-016 4.7uH	041-136-9-001
L 5	Inductor, Molded, LZ-016 10uH	041-136-9-002
T 2	Transformer, AF Choke, TF-083	042-021-9-001
T 1	Transformer, Output, TF-129	061-039-9-001
FL 1	Filter, Ceramic, FL-048	140-020-9-001
FL 2	Filter, Ceramic, FL-066	140-022-9-001
VR 7	Resistor, Semi-fixed, RV-182 500 B	008-372-9-001
VR 4, 6	Resistor, Semi-fixed, RV-182 20K B	008-375-9-004
VR 5	Resistor, Semi-fixed, RV-182 50K B	008-375-9-005
VR 3	Resistor, Semi-fixed, RV-182 100K B	008-372-9-003
VR 1	Resistor, Variable, RV-342 50K A	008-371-9-001
VR 2	Resistor, Variable, RV-241 50K B	008-371-9-002
S 401	Switch, Rotary, SR-252	083-277-9-001
S 402	Switch, Slide, SW-047	084-102-9-001
S 403	Switch, Slide, SW-045	084-102-9-002
X 1	Crystal, QX-074 10.24MHz	132-027-9-001
SP 1	Speaker, SP-070	580-038-9-001
M 1	Meter, MT-147	320-111-9-001
-----	Microhone, MK-185	562-027-9-001
J 1	Jack, Antenna, JK-035	772-027-9-001
J 2	Jack, Microphone, JK-087	773-106-9-001
J 5	Receptacle, DC Power, JK-052	762-020-9-001
J 3, 4	Jack, Speaker, JK-089	773-086-9-001
-----	DC Power Cord, W-070088	426-020-9-001
FC 401	Flat Cable, WF-005 3.5-50-3.5	426-035-9-002
FC 402	Flat Cable, WF-005 3.5-60-3.5	426-036-9-002
FC 403	Flat Cable, WF-011 3.5-50-3.5	426-035-9-003

PARTS LIST CONT'D
19 LTD

<u>CIRCUIT SYMBOL</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
R 41	Resistor, Metal Film, 100 2W K	013-043-9-001
R 39, 60	Resistor, Metal Film, 47 1W K	013-038-9-002
R 111	Resistor, Metal Film, 39 2W K	013-057-9-001
-----	Cover, Top	253-080-9-001
-----	Cover, Bottom	252-033-9-001
-----	Panel, Front	255-211-9-001
-----	Knob, Channel	751-185-9-001
-----	Knob	751-185-9-002
-----	Plate, Front Panel	260-306-9-001
-----	Optical Filter Display	763-175-9-001
-----	Screw, Mounting	634-101-9-001
-----	Spring Plate, Knob $\phi 6$	763-084-9-004